

IN THE CLAIMS

Please amend claims 1-6, 9, 12-13, 16, 18, 20-21, 23-24, and 26 as indicated below.

1. (Currently Amended) A computer implemented method comprising:
receiving at a first network element of a network ~~provider~~ a subscriber session from a
subscriber with a first tunneling protocol;
~~determining whether the subscriber session is to be routed to a destination using a~~
~~second tunneling protocol that is different than the first tunneling protocol~~;
routing at least a portion of the subscriber session to a second network element within
the network using a first tunneling protocol ~~provider~~, if the subscriber session
is to be routed to the destination using the second tunneling protocol, the
second network element being dedicated within the network provider to handle
the second tunneling protocol;
determining at the second network element whether the subscriber session should be
routed to a destination using a second tunneling protocol different than the first
tunneling protocol; and
switching the subscriber session to the destination out of the network via the second
network element using the second tunneling protocol if the subscriber session
should be routed to the destination using the second tunneling protocol.

2. (Currently Amended) The method of claim 1 ~~wherein the subscriber session is a set of~~
~~packets originating from a subscriber, wherein the method further comprising~~ comprises
authenticating the subscriber session ~~set of packets~~ based on authentication, authorization, and
accounting (AAA) information associated with the subscriber, ~~and~~ wherein the AAA
information further includes information regarding whether the subscriber session ~~set of~~

packets should be switched out and which tunneling protocol should be used when the set of packets is routed to the destination.

3. (Currently Amended) The method of claim 1 wherein switching the subscriber session comprises:

~~determining the subscriber session is to be transmitted with the second tunneling~~
~~protocol based on a result of the authenticating the set of packets;~~
the second network element decapsulating the subscriber session to extract a payload
of the subscriber session according to the first tunneling protocol;
the second network element encapsulating the extracted payload of the subscriber
session with the second tunneling protocol; and
the second network element transmitting the encapsulated subscriber session to the
destination out of the network.

4. (Currently Amended) The method of claim 3 ~~further comprising:~~ wherein
encapsulating the extracted payload comprises

~~determining whether any of local network elements is capable of handling the second~~
~~tunnel protocol;~~
~~identifying a remote network element that is capable of handling the second tunneling~~
~~protocol, if no local network element within the network provider is capable of~~
~~handling the second tunneling protocol;~~
the second network element remotely invoking an encapsulation process from the
~~remote a third~~ network element within the network to encapsulate the payload
of the subscriber session using the second tunneling protocol, if the second
network is not capable of handling the second tunneling protocol.

5. (Currently Amended) The method of claim 3 wherein decapsulating the subscriber session comprises the second network element ~~4 further comprising~~ remotely invoking a decapsulation process from ~~the remote~~ a third network element within the network to decapsulate the subscriber session according to the first tunneling protocol, ~~if no local network element within the network provider is capable~~ the second network element is not capable of handling the first tunneling protocol.

6. (Currently Amended) A computer implemented method comprising:
receiving at a second network element of a network a session encapsulated with a first tunneling protocol from a first network element within the network, the session having a control message;
the second network element decapsulating the encapsulated session to extract the control message according to the first tunneling protocol;
using the control message to determine if the session is to be transmitted with a second tunneling protocol different than the first tunneling protocol;
if the session is to be transmitted with the second tunneling protocol, creating a session structure indicating the second tunneling protocol associating the session with the session structure; and
transmitting the session as indicated by the session structure to a destination, wherein the session is encapsulated with the second tunneling protocol based on the protocol information stored within the session structure prior to transmitting the session to a destination.

7. (Previously Presented) The method of claim 6 wherein using the control message to determine if the session is to be transmitted with the second tunneling protocol comprises:

retrieving a subscriber record from a database, the subscriber record including authentication, authorization, and accounting information and the record corresponding to the subscriber indicated by the control message;
determining whether the session is to be tunneled out and which tunneling protocol should be used when the session is tunneled out, based on the record.

8. (Previously Presented) The method of claim 7 further comprising:
encapsulating the session with the second tunneling protocol determined from the record;
transmitted the encapsulated session to a destination, wherein the session is decapsulated according to the second tunneling protocol at the destination.

9. (Currently Amended) A computer implemented method comprising:
receiving at a second network element of a network a subscriber session with a first tunneling protocol from a first network element within the network;
the second network element determining that the subscriber session is to be transmitted with a second tunneling protocol different than the first tunneling protocol;
associating the subscriber session with a session structure, the session structure indicating the second tunneling protocol; and
transmitting the subscriber session as indicated by the session structure to a destination, wherein the subscriber session is encapsulated using the second tunneling protocol indicated by the session structure.

10. (Original) The method of claim 9 wherein determining if the subscriber session is to be transmitted with a second tunneling protocol comprises:

retrieving a set of data corresponding to the subscriber session, the set of data indicating the subscriber session is to be tunneled out.

11. (Original) The method of claim 9 wherein associating the subscriber session with the session structure comprises processing the subscriber session as indicated by the session structure.

12. (Currently Amended) A computer implemented method comprising:
receiving at a second network element of a network a subscriber session encapsulated with a first of a plurality of tunneling protocols from a first network element within the network;
the second network element determining that the subscriber session is to be transmitted with a second of the plurality of tunneling protocols different than / the first tunneling protocol;
the second network element creating a session structure, the session structure indicating the second of the plurality of tunneling protocols; and
transmitting the subscriber session as indicated by the session structure to a destination, wherein the subscriber session is encapsulated using the second tunneling protocol indicated by the session structure.

13. (Currently Amended) The method of claim 12 wherein the first of the plurality of protocols ~~can be~~ is one of a compulsory ~~or~~ and voluntary tunneling protocol.

14. (Original) The method of claim 12 wherein the second of the plurality of protocols is a compulsory tunneling protocol.

15. (Original) The method of claim 12 further comprising determining whether the second of the plurality of tunneling protocols is supported locally, and to access the second of the plurality of protocols from a remote server if not supported locally.

16. (Currently Amended) A network element comprising
a circuit to receive a session, the session being encapsulated with a first tunneling protocol and received from a remote network element within a network;
a logic to determine if the session is to be transmitted with a second tunneling protocol different than the first tunneling protocol,
to encapsulate the session with the second tunneling protocol if the logic determines that the session is to be transmitted with the second tunneling protocol~~[[;]]~~ , and
to transmit the session encapsulated with the second tunneling protocol to a destination out of the network.

17. (Original) The network element of claim 16 wherein the logic to determine if the session is to be transmitted with the second tunneling protocol comprises:

a control module to retrieve a set of data corresponding to the session, the set of data indicating the session is to be tunneled out; and
a tunnel module to associate the session to a session structure, the session structure indicating the second tunneling protocol.

18. (Currently Amended) The network element of claim 16 wherein the first tunneling protocol ~~can be~~ is one of a compulsory ~~or~~ and voluntary tunneling protocol.

19. (Original) The network element of claim 16 wherein the second tunneling protocol is a compulsory tunneling protocol.

20. (Currently Amended) A network element comprising:

- a tunnel decapsulation module to decapsulate a session received over an ingress tunnel according to a first ~~or~~ of a plurality of protocols from a remote network element of a network;
- a payload decapsulation module coupled to said tunnel decapsulation module to decapsulate a control packet that is part of said session;
- a control process coupled to said payload decapsulation module to determine if said session is to be transmitted over an egress tunnel that uses ~~one~~ a second of said plurality of protocols;
- a tunnel module, coupled to said tunnel encapsulation module and said control process, to encapsulate the traffic from said session in the second ~~one~~ of said plurality of protocols used for said egress tunnel.

21. (Currently Amended) The network element of claim 20, wherein:

- said control process to also determine whether the second ~~one~~ of said plurality of protocols used for said egress tunnel is stored locally, and to access the one of said plurality of protocols from a remote server if the second ~~one~~ of said plurality of protocols is not stored locally.

22. (Original) The network element of claim 20, wherein said tunnel module includes at least two of said plurality of protocols.

23. (Currently Amended) An apparatus comprising:

- a first network card to receive a set of data, the set of data being encapsulated with a first tunneling protocol received from a remote network element of a network;
- and

a computer to determine if the set of data is to be transmitted with a second tunneling protocol different than the first tunneling protocol and to encapsulate the set of data with the second tunneling protocol if determined the set of data is to be transmitted with the second tunneling protocol; and
a second network card to transmit the encapsulated set of data to a destination out of the network.

24. (Currently Amended) The apparatus of claim 23 wherein the first tunneling protocol ~~can be~~ is one of a voluntary ~~or~~ and a compulsory tunneling protocol.

25. (Original) The apparatus of claim 23 wherein the second tunneling protocol is a compulsory tunneling protocol.

26. (Currently Amended) A machine readable medium that provides instructions, which when executed by a set of processors, cause said set of processors to perform operations comprising:

receiving at a first network element of a network a subscriber session from a subscriber;
routing at least a portion of the subscriber session to a second network element within the network using a first tunneling protocol;
determining at the second network element whether the subscriber session should be routed to a destination using a second tunneling protocol different than the first tunneling protocol; and
switching the subscriber session to the destination out of the network via the second network element using the second tunneling protocol if the subscriber session should be routed to the destination using the second tunneling protocol.

receiving at a first network element of a network provider a subscriber session with a first tunneling protocol; and
determining whether the subscriber session is to be routed to a destination using a second tunneling protocol that is different than the first tunneling protocol;
routing at least a portion of the subscriber session to a second network element within the network provider, if the subscriber session is to be routed to the destination using the second tunneling protocol, the second network element being dedicated within the network provider to handle the second tunneling protocol;
and
switching the subscriber session out via the second network element using the second tunneling protocol.

27. (Original) The machine readable medium of claim 26 wherein switching comprises:
determining the subscriber session is to be transmitted with the second tunneling protocol;
encapsulating the subscriber session with the second tunneling protocol; and
transmitting the encapsulated subscriber session.

28. (Original) The machine readable medium of claim 26 wherein the first tunneling protocol can be a compulsory tunneling protocol or voluntary tunneling protocol.

29. (Original) The machine readable medium of claim 26 wherein the second tunneling protocol is a compulsory tunneling protocol.